Amendments to the Specification:

Please replace the paragraph beginning at page 14, line 18 with the following amended paragraph:

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In the preferred embodiment, control messages between the various cards in switch **10** are communicated using a virtual control channel as explained more fully in PCT Publication No. WO95/30318. A variety of message protocols can be employed to implement the control messaging between control card **84** and interface cards **18** in establishing and dismantling monitor TAC **74**. In the preferred protocol, all messages relating to monitor TAC **74** include the following parameters: (a) a copy of the original message establishing a point-to-point connection between target point A and counterpoint B; (b) transmit information, including a version of multicast header **26b**, informing the ingress card how to transmit on a new MCI; and (c) receive information, including a version of multicast header **26b**, informing the egress card how to "listen" to a new MCI. (Thus, according to the preferred protocol, three versions of the multi-cast header **26b** are created in step **98** since the addressing information for each point A, B, C is different.) This protocol or paradigm features a "create" attribute only, and hence a state table as shown in Table C below is employed in order to inform the interface cards **18** when to remove a TAC transmission or receive entry from its memories.

Please add the following new paragraphs after the paragraph ending at page 3, line 14, and before the heading "BRIEF DESCRIPTION OF DRAWINGS":

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In an aspect of the present invention, there is a method of processing a stream of data packets in a packet switch to facilitate monitoring of the stream. The packet switch has one or more interface devices for servicing an input point, a first output point and a second output point of the switch. The method comprises the steps of: (a) configuring the device servicing the input point to attach overhead associated with a point-to-point connection to packets received at the input point in order to route the packets to the first

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output point; (b) configuring the device servicing the first output point to receive and process the packets having the point-to-point overhead attached thereto; (c) configuring the device servicing the second output point to receive and process packets having overhead attached thereto which is associated with a point-to-multipoint connection for routing packets from the input point to the first output point and from the input point to the second output point; (d) configuring the device servicing the first output point to additionally receive and process packets having the point-to-multipoint overhead attached thereto, wherein the configuration of the device servicing the first output point that results from step (b) remains unchanged; and (e) only after step (d) is completed, configuring the device servicing the input point to attach the point-to-multipoint overhead to packets received at the input point instead of attaching the overhead associated with the point-to-point connection, thereby converting a point-to-point packet flow into a point-to-multipoint packet flow and enabling monitoring of data packets arriving at the second output point without disrupting the point-to-point packet flow.

The method may further comprise the steps of: (f) configuring the device servicing the second output point to stop receiving and processing packets having the point-to-multipoint overhead; (g) configuring the device servicing the input point to attach the point-to-point overhead to packets received at the input point; and (h) configuring the device servicing the first output point to stop receiving and processing packets having the point-to-multipoint overhead only after step (g) is completed, thereby terminating the flow of packets to the second output point without disrupting the flow of packets to the first output point.

Each switch point may be referenced by at least an address of the interface device within the switch and a virtual path identifier. The point-to-point overhead may comprise a unique interface device address. The point-to-multipoint overhead may comprise a multicast interface card address referencing a plurality of interface cards. The point-to-point overhead and the point-to-multipoint overhead may comprise identical bitmaps, wherein the setting of a single bit identifies a point-to-point connection and the setting of plural bits identifies a point-to-multipoint connection.

The packet may be a fixed-length cell. The packet switch may be a connection-oriented switch.

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In another aspect of the present invention, there is a method for converting a point-to-point packet flow from a first point to a second point in a packet switch into a point-to-multipoint packet flow from the first point to the second point and from the first point to a third point in the packet switch for monitoring packets arriving at the packet switch without disrupting the point-to-point packet flow. The switch comprises one or more interface devices, connected to an internal switch bus, for servicing the first, second and third points. The method comprises the steps of: (a) configuring the device servicing the third point to retrieve from the bus packets addressed thereto which use a multicast addressing scheme for routing packets from the first point to the second point and from the first point to the third point; (b) configuring the device servicing the second point to additionally retrieve from the bus the multicast packets, wherein the device servicing the second point maintains an existing configuration to retrieve, from the bus, packets forming part of the point-to-point packet flow and which use a unicast addressing scheme; (c) only after step (b) is completed, configuring the device servicing the first point to address packets received at the first point to the second and third points using the multicast addressing scheme; and (d) monitoring the multicast packets arriving at the third point.

The method may further comprise the steps of:(e) configuring the device servicing the third point to stop retrieving the multicast packets; (f) configuring the device servicing the first point to address packets received thereat only to the second point; and (g) only after step (e) is completed, configuring the device servicing the second point to stop retrieving the multicast packets, thereby terminating the flow of packets to the third point without disrupting the flow of packets to the second point.

The unicast addressing scheme may comprise a unique interface card address. The multicast addressing scheme may comprise a multicast interface card address referencing a plurality of interface cards. The unicast addressing scheme and the multicast addressing scheme may comprise identical bitmaps, wherein the setting of a single bit identifies a point-to-point connection and the setting of plural bits identifies a point-to-multipoint connection. The packet may be a fixed-length cell.

In still another aspect of the present invention, there is a method of processing a stream of data packets in a packet switch arriving at an input point thereof to facilitate monitoring of the stream. The method comprises the steps of: (a) attaching overhead associated with a point-to-point connection to packets received at the input point in order

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to route the packets to a first output point; (b)receiving and processing the packets having the point-to-point overhead attached thereto at the first output point; (c) configuring a device servicing the first output point to additionally receive and process packets having overhead attached thereto which is associated with a point-to-multipoint connection for routing packets from the input point to the first output point and from the input point to a second output point, wherein the device servicing the first output point maintains an existing configuration to receive and process packets having the point-to-point overhead attached thereto; (d)only after step (c) is completed, attaching the point-to-multipoint overhead to packets received at the input point; and (e) receiving and processing the packets having the point-to-multipoint overhead attached thereto at the second output point, thereby converting a continuous point-to-point packet flow into a point-to-multipoint packet flow and enabling monitoring of data packets arriving at the second output point without disrupting the point-to-point packet flow.

The point-to-point overhead may comprise a unique interface card address. The point-to-multipoint overhead may comprise a multicast interface card address referencing a plurality of interface cards. The point-to-point overhead and the point-to-multipoint overhead may comprise identical bitmaps, wherein the setting of a single bit identifies a point-to-point connection and the setting of plural bits identifies a point-to-multipoint connection.

The method may further comprise the steps of: (f) terminating the reception and processing of packets having the point-to-multipoint overhead at the second output point; (g) attaching the point-to-point overhead to packets received at the input point; and (h) terminating the reception and processing of packets having the point-to-multipoint overhead at the first output point only after step (g) is completed, thereby terminating the flow of packets to the second output point without disrupting the flow of packets to the first output point.

Each switch point may be referenced by at least an address of an interface card within the switch and a virtual path identifier. The point-to-point overhead may comprise a unique interface card address. The point-to-multipoint overhead may comprise a multicast interface card address referencing a plurality of interface cards. The point-to-point overhead and the point-to-multipoint overhead may comprise identical bitmaps, wherein the setting of a single bit identifies a point-to-point connection and the setting of

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plural bits identifies a point-to-multipoint connection. The packet may be a fixed-length cell.

In yet another aspect of the present invention, there is a method of non-disruptive monitoring of a point-to-point (P2P) connection established in a connection oriented network across a switching node. The method comprises: (a) receiving at a point A on an ingress interface of the switching node a protocol data unit (PDU) carried in the P2P connection and routing the PDU to a point B on an egress interface of the switching node, the P2P connection extending through the point A to the point B; (b) receiving a request for monitoring the P2P connection in the point A and creating a test point C on a second egress interface of the switching node; (c) configuring the point A, point B and test point C for establishing a point-to-multipoint (P2M) connection between the points A and B and between the point A and test point C, without impairing operation of the P2P connection; (d) switching the PDU from the P2P connection to the P2M connection without tearing down the P2P connection; and (f) at the test point C, monitoring and testing the PDU and other PDU's arriving at the point A along the P2P connection.

Step (a) may comprise: assembling a unicast header based on a network address of the PDU, the unicast header having an egress connection identifier identifying the point B as a unique destination of the PDU arriving from the point A via the P2P connection, and providing the egress connection identifier to the points A and B; and appending the unicast header to the PDU and, based on the egress connection identifier, perform the routing the PDU to the point B. After the routing the PDU to the point B, at the point B determining the network address of the PDU based on the egress connection identifier in the unicast header, stripping the unicast header from the PDU, mapping the network address into the PDU, and transmitting the PDU from the point B to a destination address provided by the network address.

Step (b) may comprise: (b1) checking validity of the point A by confirming whether the point A is an endpoint of the P2P connection on the switching node; (b2) checking whether the switching node enables routing of a monitor test access connection associated with the P2M connection between the point A and the test point C; and (b3) if

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the checking steps b1) and b1) both return an affirmative result, updating a routing table of the switching node to account for the monitor test access connection.

Step (c) may comprise: assembling a multicast header based on the network address of the PDU, the multicast header including a multicast connection identifier and providing the multicast connection identifier to the points A, B and C; configuring the point B to receive any PDU received from the point A having the unicast connection identifier and the multicast connection identifier; configuring the point A to additionally enable transmission of the PDU along the P2M connection using the multicast connection identifier after the point B is ready to receive PDU's with the multicast connection identifier; and configuring the test point C to receive any PDU received from the point A and having a multicast connection identifier of the multicast connection identifier.

Step (d) may comprises, at the point A: appending the multicast header to the PDU; transmitting the PDU with the multicast header in the P2M connection to the point B using the multicast connection identifier rather than in the P2P connection using the unicast connection identifier; and transmitting a duplicate of the PDU with the multicast header from the point A to the test point C using the multicast connection identifier.

The method may further comprise: (f) tearing-down the P2M connection once the monitoring of PDU's arriving at the point A along the P2P connection is completed. Step (f) may comprise: (f1) configuring the point A to append the unicast header to incoming PDU's and transmitting the incoming PDU's along the P2P connection rather than along the P2M connection; (f2) after completing step f1), deleting the multicast connection identifier at the points A, B and C to disable the P2M connection.

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